

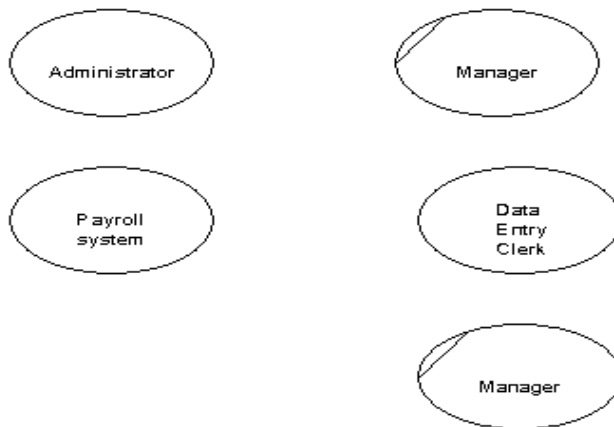
Exercise 1

The following questions relate to context diagrams:

a) What is it trying to show?

This DFD provides an overview of the data entering and leaving the system. It also shows the entities that are providing or receiving that data

b) *How many external entities should there be?*



c) *How can the context diagram be checked against the document flow diagram?*

□□ External entities must be people or systems that send information to or accept information from the system to be engineered

- Data flows must always be labelled with the data they contain. Do not put verbs in the data flow description as this implies a process
- Parent and child diagrams should be consistent. Do not show a data flow coming from or to an external entity on a level 1 DFD that isn't shown on the context diagram (and vice versa).
- Check the direction of data flows to and from data stores

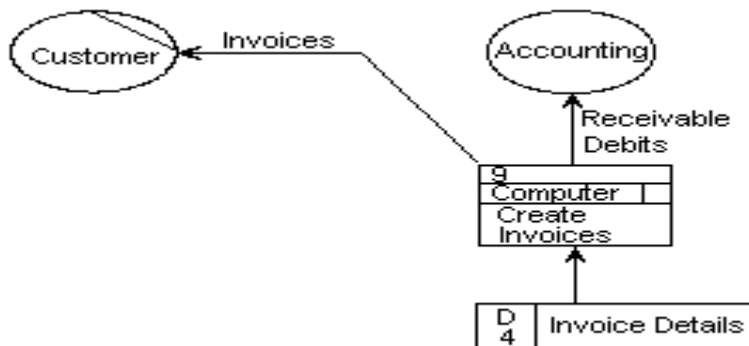
- Make sure each process has at least one input and one output
- Each data store should have at least one input and one output on the DFDs somewhere
- Each process name should start with a verb
- Where a process has only two data flows (one input and one output) then check it. Usually a data flow has been omitted.

Exercise 2

a) Represent, using the proper symbols, the following actions:

i) An external entity 'Supplier' sending an invoice to a process 'Deal with payment'. Assume the

process takes place in the Accounts division.



Exercise 3

State which pairs of symbols you are **not** permitted to connect together using a data flow

☐ ☐ External entity – Process
permitted

☐☐ *Data store – Data store*
not permitted

This would imply that one data store could independently decide to send some of information to another data store. In practice this must involve a process.

☐☐ *External entity – Data store*
not permitted

This would mean that an external entity could read or write to the data stores having direct access. Again in practice this must involve a process.

☐☐ *Process – Process*
Permitted

☐☐ *External entity – External entity*

☐☐ *Process - Data store*
Permitted

1. Unlike data flow diagrams, which represent the physical components of an information system, system flowcharts can provide a more conceptual, non-physical display of the movement of data through a system.

False. System flowcharts are more physical; data flow diagrams are more conceptual.

2. In data flow diagrams, circles are used to represent processes that take data inflows and transform them to information outflows.

True.

3. A general rule in data flow diagramming is that certain processes may have the same name.

False. All processes in a data flow diagram should have unique names

4. A general rule in data flow diagramming is that any single data flow diagram should not have more than about eleven processes.

False. A single data flow diagram should not have more than about seven processes.

5. A data flow diagram should balance between levels. This refers to the fact that the level one DFD should have the same system inputs and outputs as the corresponding level zero DFD.

True

6. Flowcharts are biased toward representing the physical characteristics of the system, while data flow diagrams can omit the physical system attributes.

True

7. If an organization changes the format of its master files from magnetic tape to disk, and all other activity remains constant, that organization's system flowchart need not be altered.

False. The system flowchart must be altered to reflect the physical component change

8. One difference between system flowcharts and data flow diagrams is that system flowcharts have numerous different types of symbols and data flow diagrams have just four types of symbols.

True

9. The highest level of data flow diagrams is the Level One diagram.

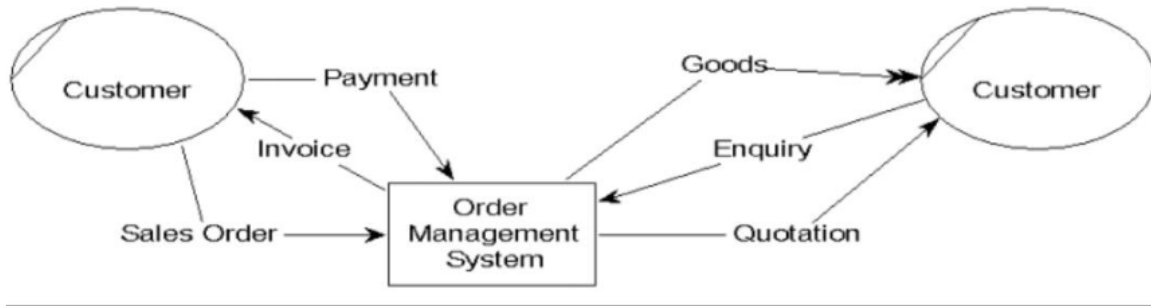
False. The highest level is called a context diagram.

Case Study

1. Draw Context Diagram and Diagram-0 for following cases.

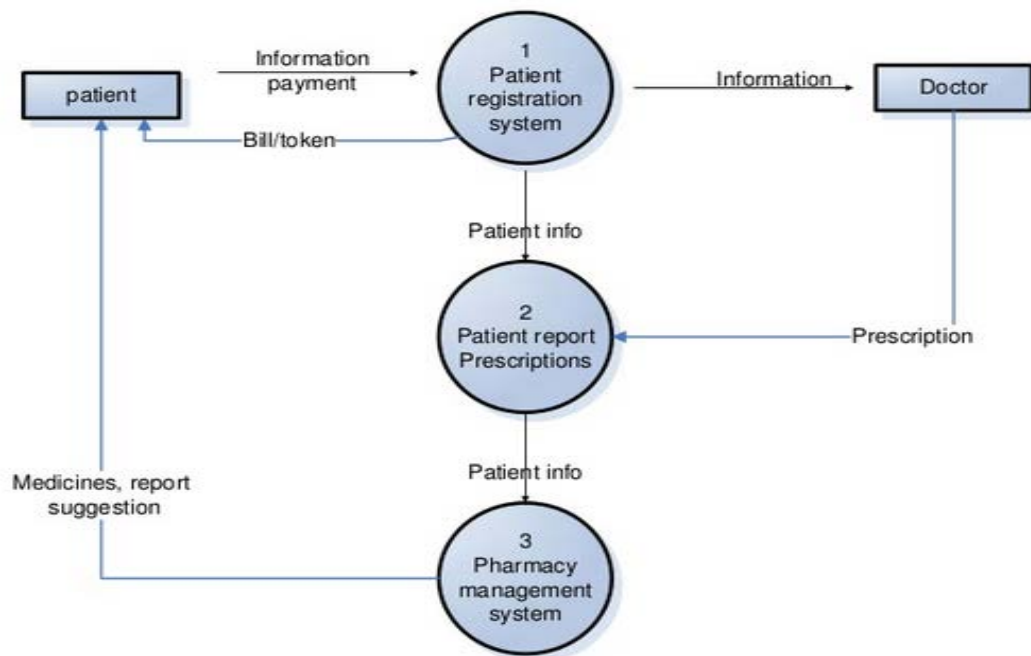
a. Customer Order Management System: Customer will place the order. The order placed by customer will be validated by order manager. Once the order is confirmed, the customer makes payment as respective of the order. Things to consider as external entity will be **Customer, Order Manager.**

Sol:



b. Medical Shop Management System: Patient will come with the prescription. The shop will deliver the medicine to the patient according to the prescription. Once the medicine is delivered, patient makes payment for the medicine. Shop will also manage the stock inventory as well.

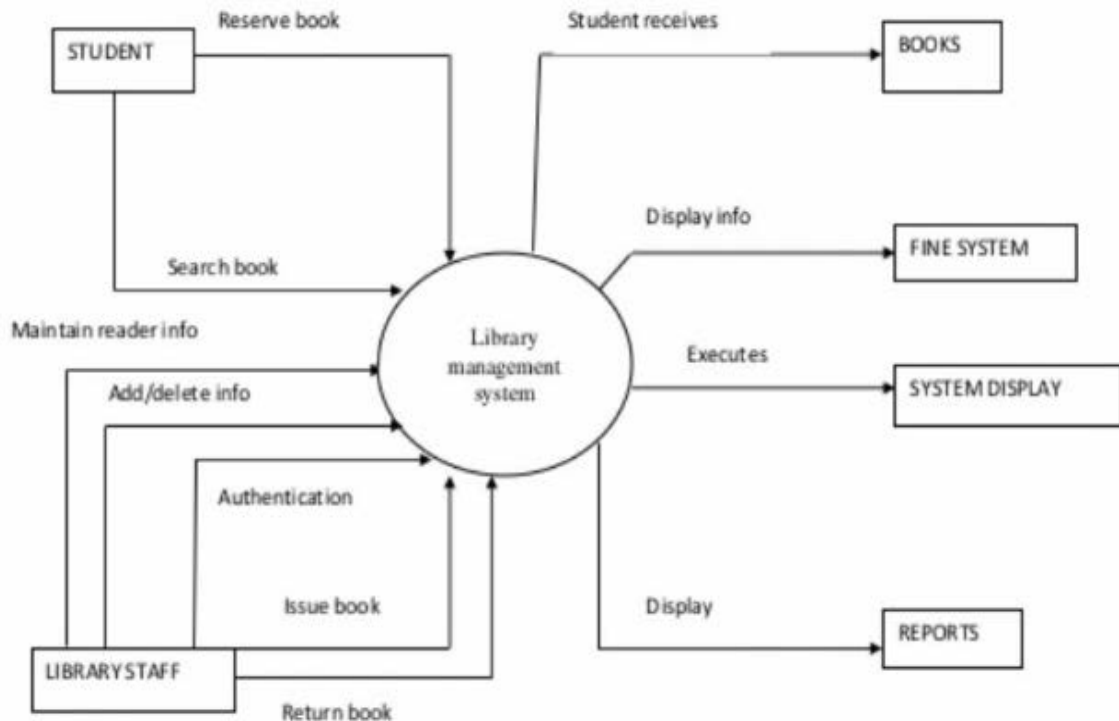
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c. Library Management System: Student/Teacher will issue books or any other materials from library. The validity date of the issue need to be considered. On late return of the materials late fine will be punished to the

issuer. Library will also manage the stock inventory of the books or any other materials.

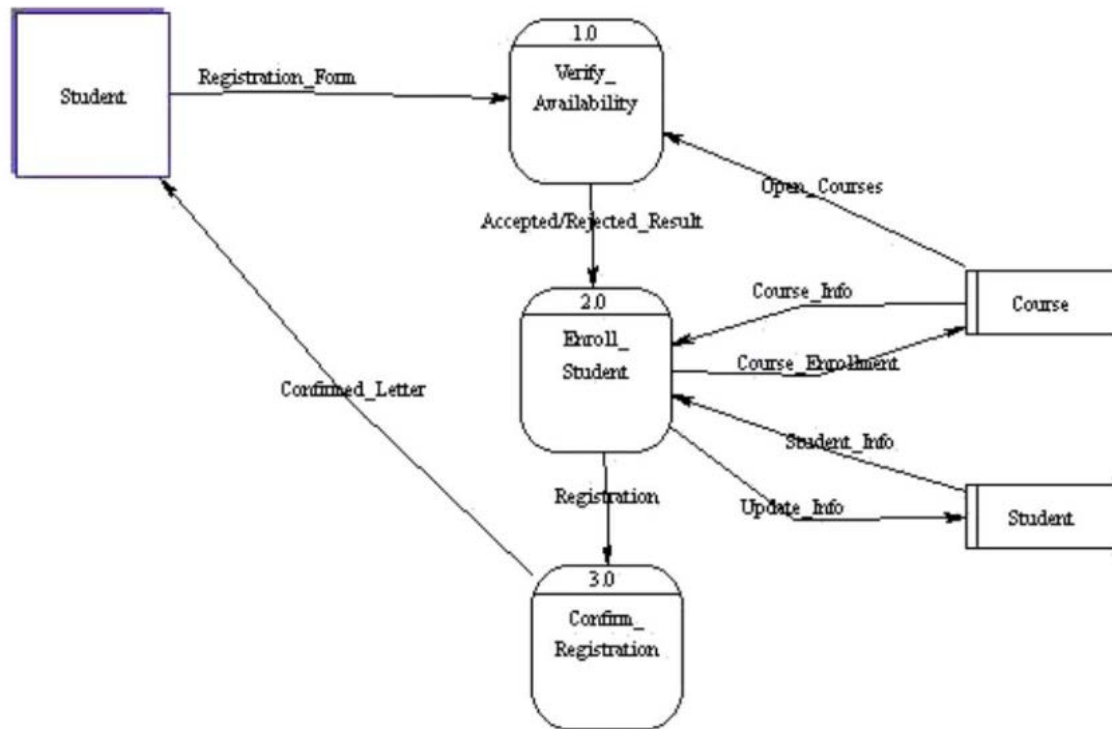
Sol:



d. **Student Enrollment System:** Student will enroll to the college providing basic details. The subject and course he/she wish to take will be assigned to the student. On increment of their level, the education details of student will

be updated to their profile. Enrollment process will be managed by **Receptionist** of the college.

Sol:



5. Draw Context Diagram for following system :

A large pizza business makes pizzas and sells them. The pizzas are manufactured and kept in cold storage for not more than two weeks.

The business is split into a number of functional units. There is Production Control, Manufacturing, Stores, Accounts, Sales, Shipping and Purchasing. Production Control are responsible for organising which pizzas to produce in what order and in what quantity. They need to schedule the production of the pizzas according to the current and expected sales orders together with the number of pizzas already in Stores. Manufacturing take the raw materials from the Stores and manufacture pizzas returning the completed goods to the Stores. Accounts deal with the payments for the pizzas when delivered to the customer and the payment to the suppliers of the raw materials. Sales deal with customer orders whilst Purchasing organise the buying of raw material from suppliers. Shipping manage the packing and delivery of the goods to the customer with a delivery note.

When a sales order is received by sales they record what is being ordered and by whom. They also record the details of the expected date of delivery. Production Control access this information and make sure that, if required, pizzas are produced by Manufacturing and are ready in Stores for when the delivery needs to be made.

After the delivery is made Accounts make sure that the customer receives an invoice and that payment for the invoice is received at which time a receipt is issued. Purchasing look at the current stock of raw materials and by using current stock levels, supplier turn around times and quantity to be ordered decide what needs to be ordered on a daily basis. Their aim is never to run out of an ingredient but to minimise the amount of raw material kept in stock.

Sometimes a document flow diagram may be drawn to show the way in which information flows around the system. Here is one shown below.

Sol:

